CLAIMS

1. Method for monitoring the instantaneous behaviour of a tyre in a rolling condition, comprising the steps of:

a) acquiring and storing, at least temporarily, at least one reference curve which represents the acceleration profile of at least one specified point of the said tyre in at least two directions selected from a centripetal, a tangential and a lateral directions as a function of the position of the said point, in at least one portion of a revolution of the said tyre,

b) continuously acquiring signals of the acceleration in said at least two directions of said at least one point of the said tyre, in at least one portion of a revolution of the said tyre,

c) deriving from the said signals at least one cyclic curve of acceleration profile of the said at least one point in at least the said portion of a revolution of the said tyre,

d) comparing said at least one cyclic curve with the said at least one reference curve, and

e) emitting a signal depending on the said comparison, the said signal indicating the said instantaneous behaviour of the said tyre.

2. Method as claimed in claim 1, wherein said step of comparing comprises comparing said at least one reference curve and said at least one cyclic curve point by point for an entire revolution of the tire.

3. Method as claimed in claim 1, wherein said step of comparing comprises comparing a reference curve derived from a first point on the tire and a cyclic curve derived from a second point on the tire.

4. Method as claimed in claim 3, wherein said first point is located on the liner surface along the equatorial plane of the tire and said second point is located on the liner surface on a shoulder of said tire, said first and second points being located along the same meridian plane of the tire.

5. Method as claimed in claim 3, wherein said first point is located on the liner surface along the equatorial plane of the tire on a left shoulder of said tire and said second point is located on the liner surface on a right shoulder of said tire, said first and second points being located along the same meridian plane of the tire.

6. Method as claimed in claim 3, wherein said first point is located on the liner surface along the equatorial plane of the tire and the second point is located on the liner surface along the equatorial plane distant from said first point for a predetermined arc.

7. Method as claimed in claim 1, wherein said step of comparing comprises comparing characteristic peaks of said at least one reference curve with correspondents characteristic peaks of said at least one cyclic curve.

8. Method as claimed in claim 1, wherein said step of comparing comprises comparing a portion of the area under said at least one reference curve with the correspondent portion of the area under said at least one cyclic curve.

9. System for monitoring the instantaneous behaviour of a tyre in a rolling condition comprising:

i. at least one memory element for acquiring and storing, at least temporarily, at least one reference curve which represents the acceleration profile of at least one specified point of the said tyre in at least two directions selected from a centripetal, a tangential and a lateral directions in at least one portion of a revolution of the tyre,

ii. at least one sensor associated with the said at least one specified point of the said tyre, capable of emitting, over a period of time, signals of the acceleration in said directions of the said point,

iii. a receiving device capable of continuously acquiring the said signals of the acceleration of the said at least one point of the said tyre, in at least the said portion of a revolution of the said tyre, and

iv. an elaboration unit incorporating a program capable of determining from the said signals of acceleration at least one cyclic curve of acceleration of the said at least one point in the said directions in at least the said portion of a revolution of the said tyre,

v. said elaboration unit being capable of continuously comparing said at least one of cyclic curves of acceleration with said at least one stored reference curve,

vi. said elaboration unit being additionally capable of emitting a signal depending on the said comparison, the said signal indicating the said instantaneous behaviour of the said tyre.

10. System as claimed in claim 9, wherein a first sensor is located on the liner surface along the equatorial plane of the tire and a second sensor is located on the liner surface on a shoulder of said tire, said first and second sensors being located along the same meridian plane of the tire.

11. System as claimed in claim 9, wherein a first sensor is located on the liner surface along the equatorial plane of the tire on a left shoulder of said tire and a second sensor is located on the liner surface on a right shoulder of said tire, said first and second sensors being located along the same meridian plane of the tire.

12. System as claimed in claim 9, wherein a first sensor is located on the liner surface along the equatorial plane of the tire and a second sensor is located on the liner surface along the equatorial plane distant from said first sensor for a predetermined arc.

13. System as claimed in claim 12, further comprising a third sensor located on the liner surface along the equatorial plane of the tire distant from said second sensor for a predetermined arc.

14. System as claimed in claim 13, wherein said first and second and third sensors are equidistant each other.

15. System as claimed in claim 10, wherein a third sensor is located on the opposite shoulder of said second sensor along the same meridian plane of said first and second sensor.

16. System as claimed in claim 9 further comprising a speed sensor of said tire.

17. System as claimed in claim 9 further comprising a pressure sensor of said tire.

18. Pneumatic tire comprising at least one sensor associated with at least one specified point of said tire, capable of emitting, over a period of time, a signal, which represents the acceleration profile of said at least one specified point, in at least two directions selected from a centripetal, a tangential and a lateral directions as a function of the position of the said point, in at least one portion of a revolution of the said tire.